US009249620B2

(12) **United States Patent**
Kim

(10) **Patent No.: US 9,249,620 B2**
(45) **Date of Patent: Feb. 2, 2016**

(54) **ROLL BLIND**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1093 days.

(21) Appl. No.: **12/672,106**

(22) PCT Filed: **Nov. 17, 2008**

(86) PCT No.: **PCT/KR2008/006759**

§ 371 (c)(1),
(2), (4) Date: **Feb. 4, 2010**

(87) PCT Pub. No.: **WO2009/136683**

PCT Pub. Date: **Nov. 12, 2009**

(65) **Prior Publication Data**

US 2011/0061821 A1 Mar. 17, 2011

(30) **Foreign Application Priority Data**

May 7, 2008 (KR) 10-2008-0042415

(51) **Int. Cl.**

A47H 1/00	(2006.01)
E06B 9/40	(2006.01)
E06B 9/264	(2006.01)
E06B 9/24	(2006.01)

(52) **U.S. Cl.**

CPC . ***E06B 9/40*** (2013.01); ***E06B 9/264*** (2013.01); *E06B 2009/2405* (2013.01); *E06B 2009/2458* (2013.01); *E06B 2009/405* (2013.01)

(58) **Field of Classification Search**

CPC E06B 9/40; E06B 9/262; E06B 2009/405; E06B 2009/2405; E06B 2009/2458
USPC ..... 160/120, 238, 241, 309, 312, 320, 321, 160/86, 89, 85, 88, 315, 317, 323.1; 192/223.4, 41 S

See application file for complete search history.

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(57) **ABSTRACT**

A roll blind is provided which can guarantee a simple operation. The roll blind includes: a supporting frame disposed in a window frame; first and second winding bars rotatably disposed in the supporting frame; a winding driver rotationally driving one of the first and second winding bars; first and second screens coupled to the first and second winding bars, respectively; a weight bar to which the tower ends of the first and second screens are fixed; and a clutch unit binding and unbinding the first and second winding bars with respect to each other.

11 Claims, 7 Drawing Sheets

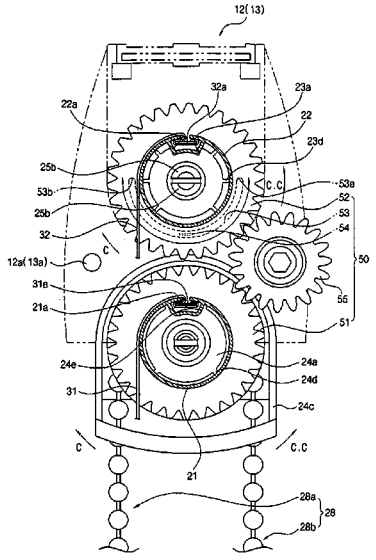

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Fig. 1

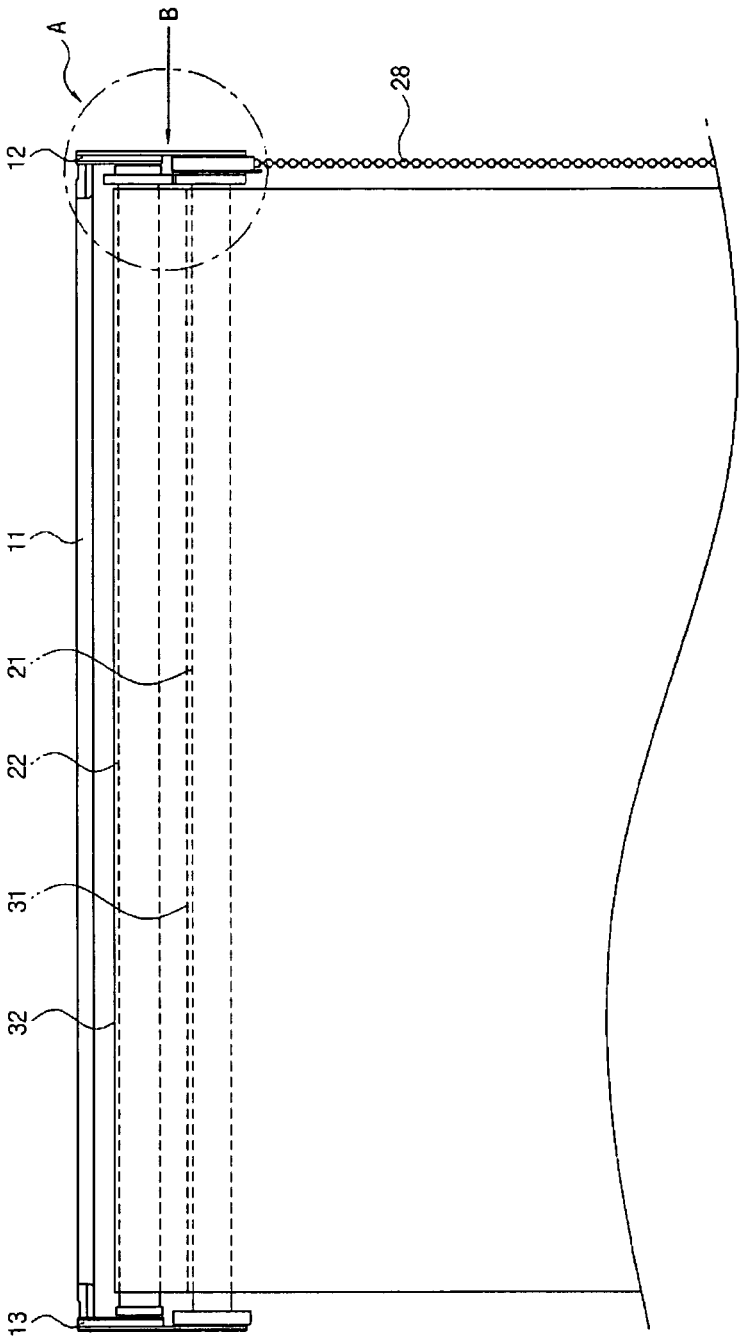
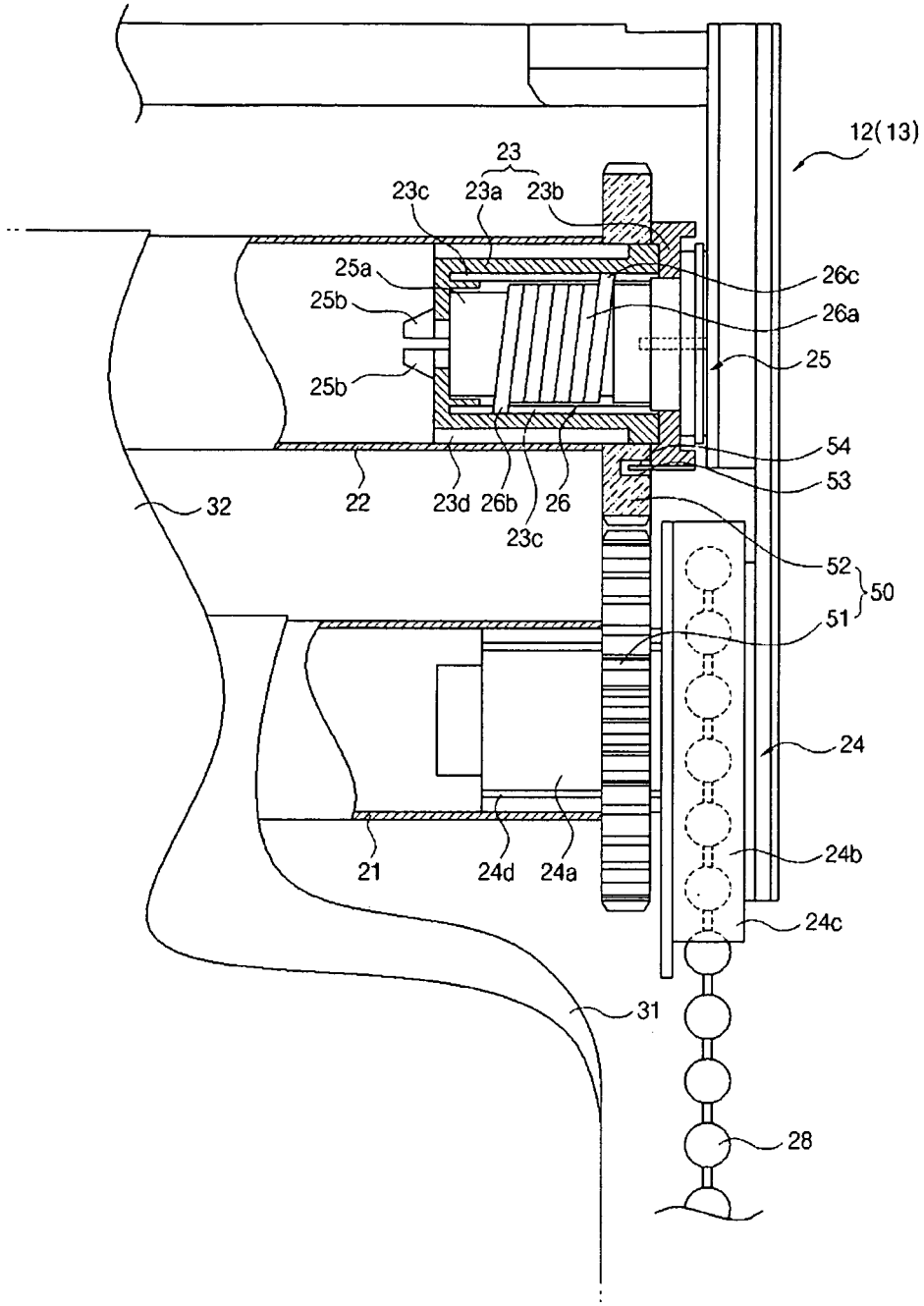


Fig. 2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23c
23a
23b
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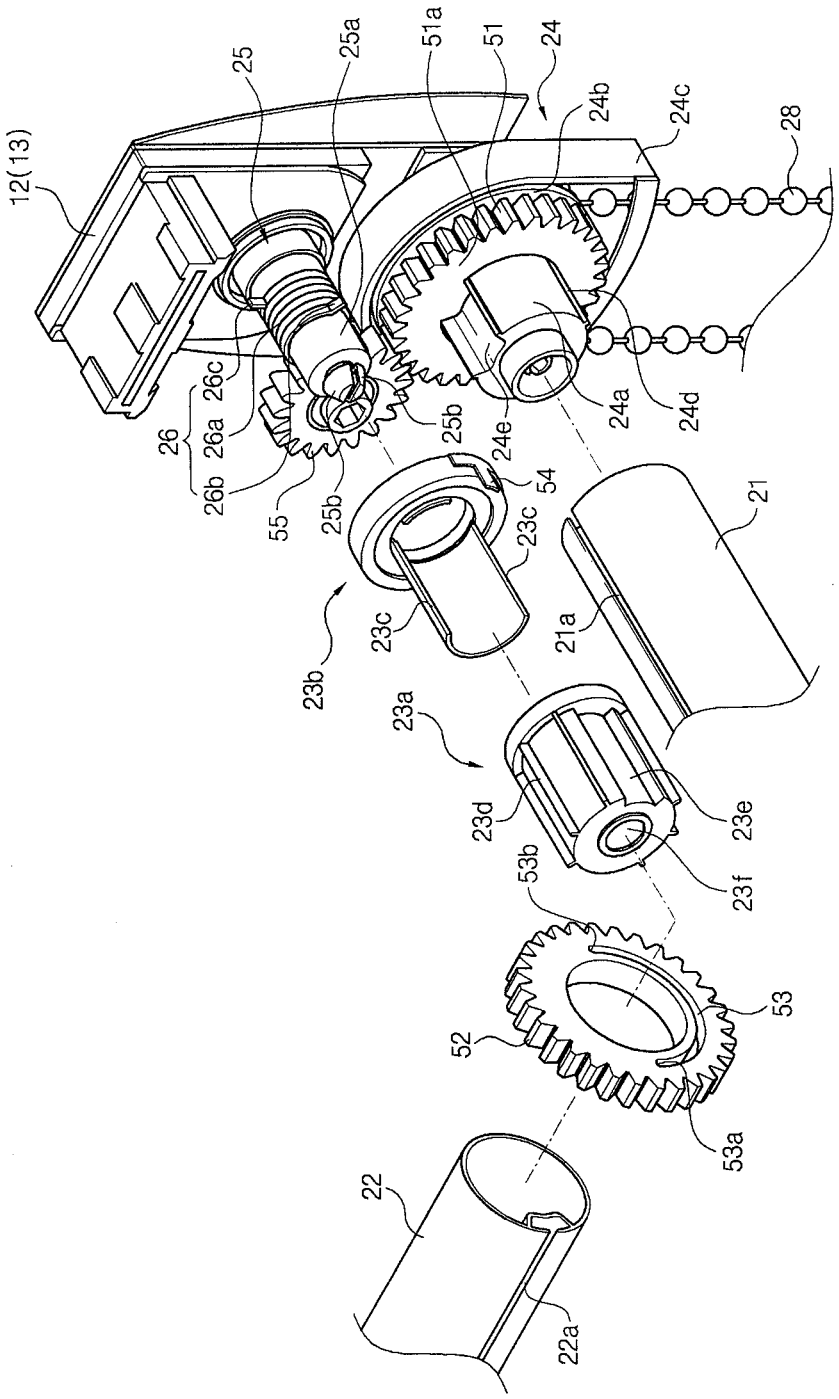
24d
24a

FIG. 3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24d
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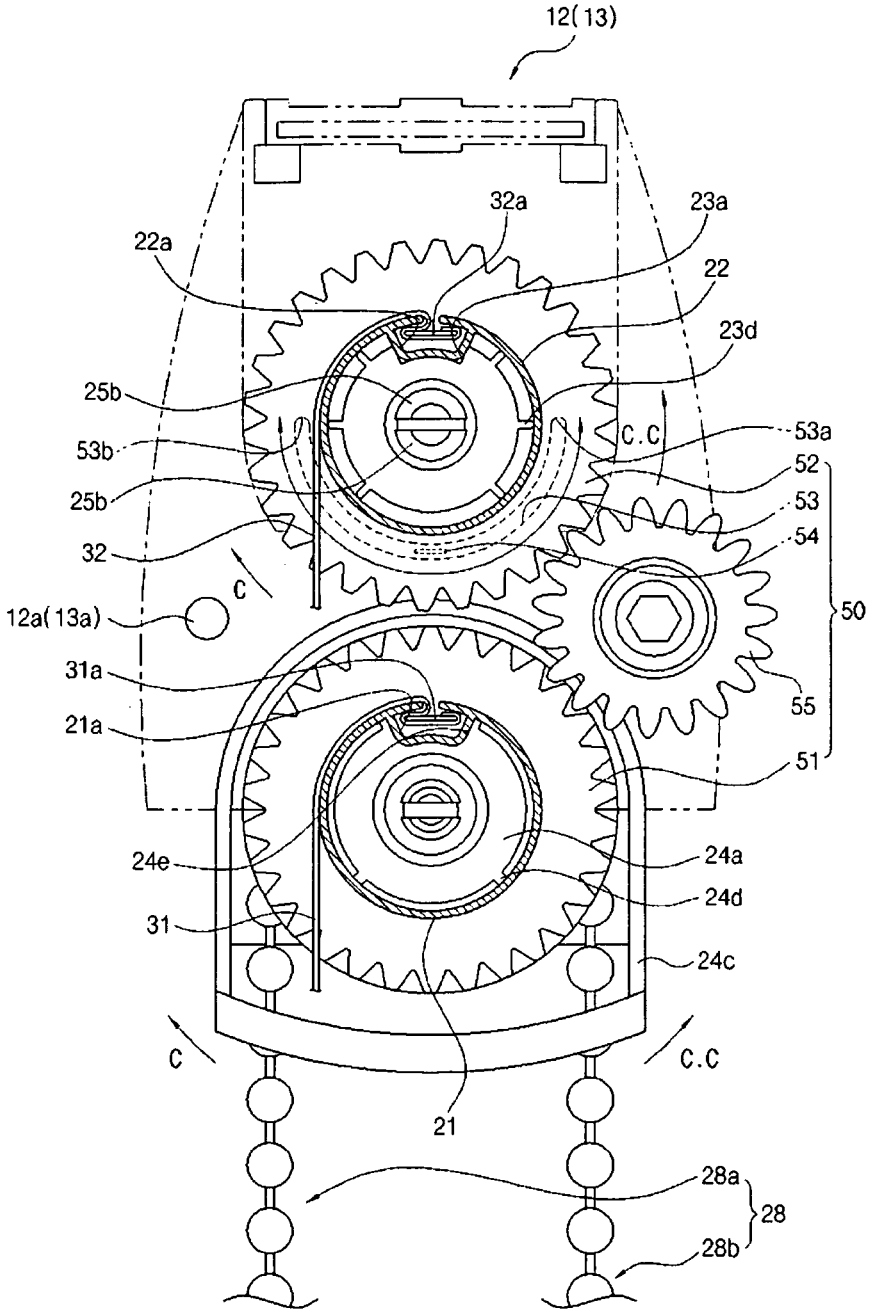
53b
23f
53
52
53a
22
22a

Fig. 4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25b
53
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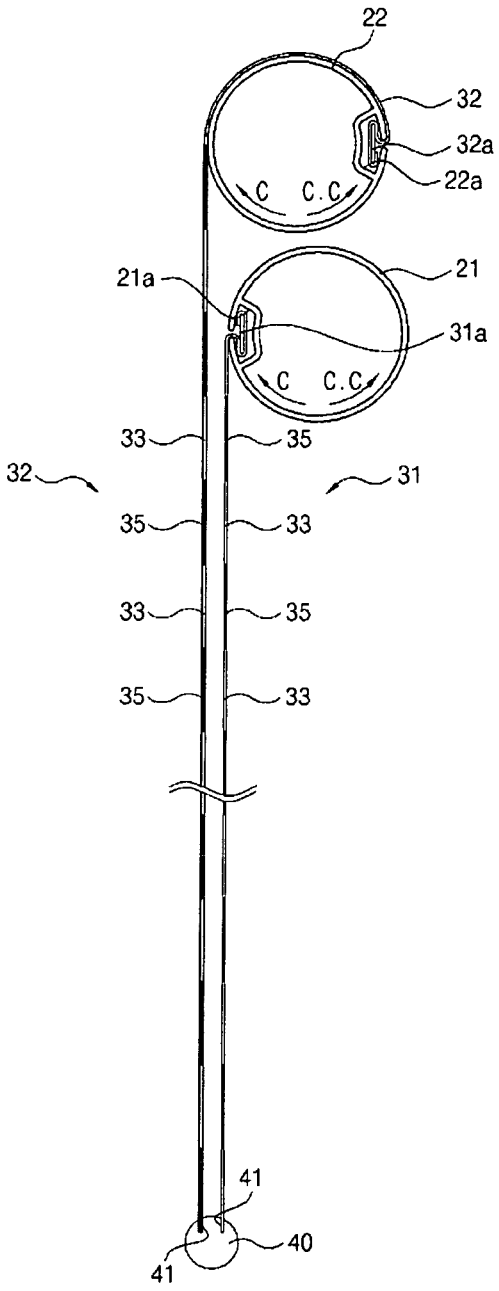
50
31a
55
21a
51
24e
24a
24d
31
24c
C
C.C
21
28a
28
28b

Fig. 5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C C.C
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21a
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33
41
40
41

Fig. 6

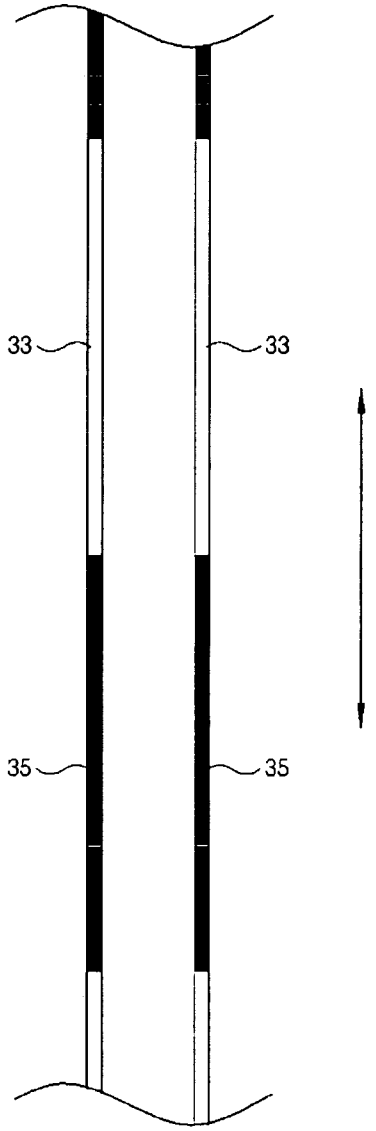
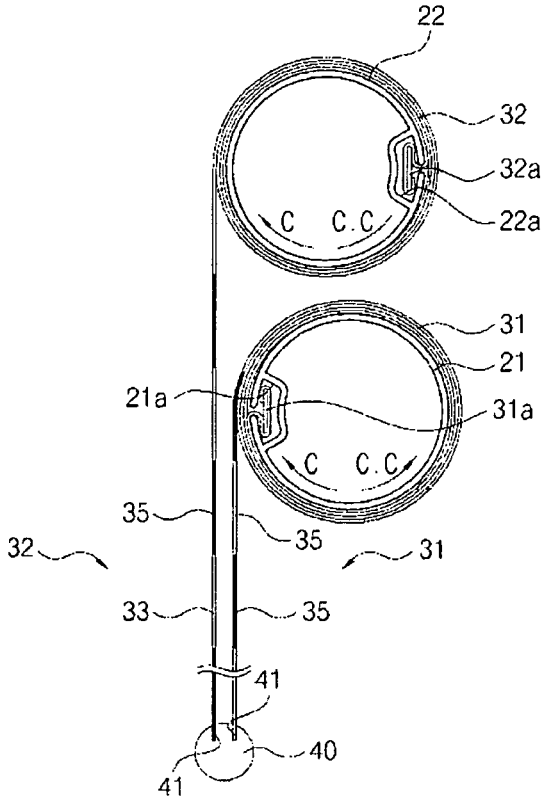


Fig. 7



ROLL BLIND

This application is a national phase of International Application No. PCT/KR2008/006759 filed Nov. 17, 2008 and published in the English language.

TECHNICAL FIELD

The present invention relates to a roll blind, and more particularly, to a roll blind that can guarantee a simple operation.

BACKGROUND ART

A roll blind serves to block light beams, block external sight, absorb sounds, protect against the hot, and protect against the cold by downward unwinding or winding a screen in a roll shape. In addition to the practical use, the roll blind also serves to soften the hardness of a wall or glass and improve an interior beautiful sight by combinations of colors.

On the other hand, the known roll blind cannot properly adjust the intensity of light input from the outside by downward unwinding or winding the screen, and it is thus difficult to adjust the brightness.

Accordingly, a roll blind that can easily adjust the brightness was suggested in recent years. Examples of such a roll blind having a brightness adjusting function are disclosed in Korean Utility Model Registration Nos. 20-365028 and 20-0279166.

In such roll blinds having the brightness adjusting function, a transparent portion and an opaque portion are alternately arranged on the surface of a screen, the transparent portion and the opaque portion are formed in a stripe pattern, and the front transparent portions and the rear opaque portions are made to overlap with each other to adjust the intensity of light input from the outside, thereby adjusting the brightness.

However, the known roll blinds having the brightness adjusting function take much time for unwinding or winding a screen and are troublesome in operation, thereby deteriorating the convenience of use.

The known roll blinds having the brightness adjusting function do not guarantee the straightness of the stripe lines of the transparent portions and the opaque portions. Accordingly, the stripe lines of the transparent portions and the opaque portions overlapping with each other may be inclined to one side or curved to both sides, thereby damaging the external appearance.

DISCLOSURE OF INVENTION

Technical Problem

The invention is contrived to solve the above-mentioned problems. An advantage of the invention is to provide a roll blind that can greatly enhance the convenience of use by enabling rapid and simple unwinding and winding operations of a screen.

Another advantage of the invention is to provide a roll blind that can improve the external appearance by enhancing the straightness of the stripe lines of transparent portions and opaque portions in a screen.

Technical Solution

According to an aspect of the invention, there is provided a roll blind including: a supporting frame disposed in a window frame and having a pair of end plates disposed at both ends; first and second winding bars rotatably disposed in the end plates of the supporting frame; a winding driver rotationally driving one of the first and second winding bars; first and second screens coupled to the first and second winding bars, respectively; a weight bar to which the lower ends of the first and second screens are fixed; and a clutch unit binding and unbinding the first and second winding bars with respect to each other.

Here, the clutch unit includes a driving gear fixedly coupled to the winding driver and a driven gear disposed to be bound to and unbound from the second winding bar.

An intermediate gear is interposed between the driving gear and the driven gear.

The driven gear has an arc-like clutch groove formed in one surface thereof, the clutch groove has both end portions, the second winding bar has a clutch protrusion, and the driven gear is selectively bound to or unbound from the second winding bar by guiding the clutch protrusion in the clutch groove and bringing the clutch protrusion into selective contact with both end portions of the clutch groove.

The winding driver may be disposed at one end of the first winding bar, the winding driver may rotate along with the first winding bar, the winding driver may include a small-diameter portion and a large-diameter portion, the small-diameter portion may be inserted and coupled to the inner circumference of the first winding bar, and a driving string may be wound on the outer circumferential surface of the large-diameter portion.

A rotating member may be disposed in one inner circumference of the second winding bar, the rotating member may rotate along with the second winding bar, a fixed member may be disposed inside the rotating member, and the fixed member may rotatably support the rotating member.

An elastic member providing elastic force in a circumferential direction to the rotating member may be disposed between the rotating member and the fixed member.

The rotating member may include first and second rotating members, the second rotating member may be inserted into the first rotating member, and the elastic member may include a torsion portion wound on the outer circumferential surface of the fixed member and elastic legs disposed at both ends of the torsion portion and contactable with the second rotating member.

The clutch unit may include a driving gear fixedly coupled to the winding driver and a driven gear disposed to be bound to and unbound from the second winding bar. The driving gear may be fixedly coupled to the winding driver, the driven gear may have a clutch groove formed in the circumferential direction in one surface thereof, the clutch groove may have both end portions, the second rotating member may have a clutch protrusion, and the driven gear may be selectively bound to or unbound from the second winding bar by guiding the clutch protrusion in the clutch groove and bringing the clutch protrusion into selective contact with both end portions of the clutch groove.

Advantageous Effects

According to the above-mentioned configurations, since the first and second screens are wound on and unwound from the first and second winding bars, respectively, it is possible to rapidly and simply wind and unwind the screen.

According to the above-mentioned configurations, since a screen is divided into the first screen and the second screen, it is possible to precisely improve the straightness of the stripe

lines of the transparent portions and the opaque portions of the screens, thereby improving the external appearance thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front view illustrating a roll blind according to an embodiment of the invention.

FIG. **2** is a partial sectional view illustrating the part of arrow A in FIG. **1**.

FIG. **3** is an exploded perspective view illustrating constituent elements of FIG. **2**.

FIG. **4** is a sectional view as viewed along arrow B in FIG. **1**.

FIG. **5** is a diagram illustrating a state where first and second screens of the roll blind according to the embodiment are unwound.

FIG. **6** is a partial sectional view illustrating a state where transparent portions and opaque portions of the first and second screens according to the embodiment of the invention are matched with each other.

FIG. **7** is a diagram illustrating a state where the first and second screens of the roll blind according to the embodiment are wound.

MODE FOR THE INVENTION

Hereinafter, exemplary embodiments of the invention will be described in detail with reference to the accompanying drawings.

FIGS. **1** to **7** show a roll blind according to an embodiment of the invention.

As shown in the drawings, the roll blind according to the embodiment of the invention includes a supporting frame **11** disposed in a window frame or the like, first and second winding bars **21** and **22** rotatably disposed in the supporting frame **11**, first and second screens **31** and **32** coupled to the first and second winding bars, respectively, a weight bar **40** to which the lower ends of the first and second screens **31** and **32** are fixed, and a clutch unit **50** binding and unbinding the first and second winding bars **21** and **22** with respect to each other.

The supporting frame **11** has a length corresponding to the width of a window and a pair of end plates **12** and **13** is disposed at both ends thereof.

The first and second winding bars **21** and **22** are rotatably disposed in the pair of end plates **12** and **13**. The first and second winding bars **21** and **22** have on the outer circumferential surfaces attachment grooves **21***a* and **22***a* to which the upper ends of the first and second screens **31** and **32** are individually coupled, respectively.

An end of the first winding bar **21** is disposed in one end plate **12** via a winding driver **24**. The winding driver **21** is disposed to rotate along with the first winding bar **21**. The winding driver **24** is rotatably supported by one end plate **12** and the other end of the first winding bar **21** is rotatably supported by the other end plate **13**.

The winding driver **24** has a small-diameter portion **24***a* and a large-diameter portion **24***b*. The small-diameter portion **24***a* protrudes from the large-diameter portion **24***b*. The small-diameter portion **24***a* of the winding driver **24** is inserted and coupled into the inner circumference of the first winding bar **21**, whereby the winding driver **24** and the first winding bar **21** rotate together. Plural insertion ribs **24***d* and an insertion groove **24***e* are formed in the outer circumferential surface of the small-diameter portion **24***a*. An insertion groove **21***a* of the first winding bar **21** is inserted into the insertion groove **24***e* and the plural insertion ribs **24***d* come in frictional contact with the inner circumferential surface of the first winding bar **21**.

A driving string **28** is wound on the outer circumferential surface of the large-diameter portion **24***b* of the winding driver **24**. The winding driver **24** rotates clockwise and counterclockwise by pulling the driving string **28**. The outer circumferential surface of the large-diameter portion **24***b* is covered with a cover **24***c*.

A rotating member **23** is disposed in the inner circumference of the second winding bar **22**. The rotating member **23** rotates along with the second winding bar **22**. A fixed member **25** is disposed in the rotating member **23** to rotationally support the rotating member **23**. One end of the fixed member **25** is fixed to one end plate **12** and the other end of the fixed member **25** is provided with a protruding portion **25***a*. Two or more elastic coupling protrusions **25***b* that can be elastically narrowed or widened are formed at the end of the protruding portion **25***a*. The rotating member **23** is rotatably coupled to the fixed member **25** by coupling the elastic coupling protrusions **25***b* to an assembling hole **23***f* of the rotating member **23**. The other end of the second winding bar **22** is rotatably supported by the other end plate **13**.

On the other hand, the rotating member **23** includes first and second rotating members **23***a* and **23***b*. The second rotating member **23***b* is inserted into the first rotating member **23***a*.

The outer circumferential surface of the first rotating member **23***a* is inserted into the inner circumference of the second winding bar **22**. Plural insertion ribs **23***d* and an insertion groove **23***e* are formed in the outer circumferential surface of the first rotating member **23***a*. An insertion groove **22***a* of the second winding bar **22** is inserted into the insertion groove **23***e* and the plural insertion ribs **23***d* come in frictional contact with the inner circumferential surface of the second winding bar **22**.

A clutch protrusion **54** may be disposed on one side of the outer circumferential surface of the second rotating member **23***b*. The second rotating member **23***b* has a supporting wall **23***c* protruding to one side. The supporting wall **23***c* is inserted into the first rotating member **23***a*. The supporting wall **23***c* has an arc-like sectional shape.

An elastic member **26** providing circumferential elastic force to the first rotating member **23***a* is disposed between the rotating member **23** and the fixed member **25**. The circumferential elastic force is given to the first rotating member **23***a* in the rotation direction by the elastic member **26** and thus the second winding bar **22** and the first rotating member **23***a* are coupled to each other with greater coupling force in the rotation direction. In the embodiment, a torsion spring **26** is exemplified as the elastic member **26**. The torsion spring **26** includes a torsion portion **26***a* wound on the outer circumferential surface of the protruding portion **25***a* of the fixed member **25***f* and elastic legs **26***b* and **26***c* formed at both ends of the torsion portion **26***a*. The elastic legs **26***b* and **26***c* of the torsion spring **26** come in contact with the ends of the supporting wall **23***c* of the second rotating member **23***b* and the opposite elastic force in the circumferential direction is applied to the elastic legs **26***b* and **26***c*.

Plural transparent portions **33** and plural opaque portions **35** are alternately and continuously arranged in the first and second screens **31** and **32** and each transparent portion **33** and each opaque portion **35** have the same width and height. The transparent portions **33** and the opaque portions **35** are formed in a stripe pattern.

The lower ends of the first and second screens **31** and **32** are individually coupled to the weight bar **40**. The first and sec-

ond screens **31** and **32** can keep the unwound state in the direction of gravitational force constant by the use of the weight bar **40**.

A coupling member **31***a* is fixed to the upper end of the first screen **31**. The first coupling member **31***a* of the first screen **31** is inserted and coupled into the insertion groove **21***a* of the first winding bar **21** and the lower end of the first screen **31** is coupled to the weight bar **40**.

A coupling member **32***a* is fixed to the upper end of the second screen **32**. The first coupling member **32***a* of the second screen **32** is inserted and coupled into the insertion groove **22***a* of the second winding bar **22** and the lower end of the second screen **32** is coupled to the weight bar **40**.

The clutch unit **50** allows the first and second winding bar **21** and **22** to rotate at the same time or allows only one of the first and second winding bars **21** and **22** to selectively rotate, by mutually binding or unbinding the first and second winding bars **21** and **22**.

The clutch unit **50** according to an embodiment includes a driving gear **51** fixedly coupled to the first winding bar **21** and a driven gear **52** disposed to be bound to and unbound from the second winding bar **22**.

The driving gear **51** has a coupling protrusion **51***a* in its inner circumference. By inserting the coupling protrusion **51***a* into the insertion groove **24***e* of the winding driver **24**, the driving gear **51** is fixedly disposed in the winding driver **24**, whereby the driving gear **51** rotates along with the first winding bar **21**.

The driven gear **52** is rotatably disposed between the second winding bar **22** and the rotating member **23**. The driven gear **52** is disposed to be bound to and unbound from the second winding bar **22**, whereby the driven gear **52** can rotate along with the second winding bar or independent of the second winding bar **22**.

The driven gear **52** has an arc-like clutch groove **53** formed in one surface thereof and the clutch groove **53** has both end portions **53***a* and **53***b*. A clutch protrusion **54** protrudes from one side of the second winding bar **22** toward the clutch groove **53** and the clutch protrusion **54** is guided in the clutch groove **53**. The driven gear **52** and the second winding bar **22** are connected to each other to be mutually bound and unbound by the clutch groove **53** and the clutch protrusion **54**. On the other hand, in this embodiment, the clutch protrusion **54** may be fixedly installed on the outer circumferential surface of the second rotating member **23***b*, which rotates along with the second winding bar **22**, with a coupling mechanism or an adhesive.

Accordingly, with the rotation of the driven gear **52**, the clutch protrusion **54** is guided in the clutch groove **53**. When the clutch protrusion **54** comes in contact with the end portions **53***a* and **53***b* of the clutch groove **53**, the driven gear **52** and the second winding bar **22** can rotate together in the same direction while maintaining the bound state.

A circumferential portion a of the clutch groove **53** is a section where the driven gear **52** rotates independent of the second winding bar **22** (that is, a section where the driven gear **52** is not bound (unbound) to the second winding bar **22**). In the circumferential portion a of the clutch groove **53**, since only the first winding bar **21** can rotate clockwise or counterclockwise, the transparent portions **33** and the opaque portions **35** of the first and second screens **31** and **32** intersect each other, whereby the intensity of light input from the outside can be adjusted to adjust the brightness. That is, the circumferential portion a of the clutch groove **53** is set to a section for adjusting the brightness.

On the other hand, in the clutch unit **50** according to an embodiment, an intermediate gear **55** may be interposed between the driving gear **51** and the driven gear **52**, whereby the driving gear **51** and the driven gear **52** rotate in the same rotation direction. The intermediate gear **55** is disposed close to one end plate **12** and the end plate **12** may further have an extra installation hole **12***a* for installing the intermediate gear **55** to correspond to the change in installation position of the intermediate gear **55**.

On the other hand, in the clutch unit **50** according to another embodiment, the driving gear **51** and the driven gear **52** may be made to directly engage with each other without interposing the intermediate gear **55** between the driving gear **50** and the driven gear **52**, whereby the driving gear **51** and the driven gear **52** rotate in the opposite rotation directions.

The operation of the clutch unit **50** having the above-mentioned configuration is as follows.

When the winding driver **24** rotates clockwise or counterclockwise by pulling the driving string **28**, the driving gear **51** rotates in the same direction as the winding driver **24** and thus the driven gear **52** rotates in the same direction as the driving gear **51** via the intermediate gear **55**. On the other hand, when the intermediate gear **55** is not disposed, the driven gear **52** rotates in the opposite direction of the driving gear **51**.

When the driven gear **52** rotates and the clutch protrusion **54** is being guided in the circumferential portion a of the clutch groove **53**, the driven gear **52** is not coupled to the second winding bar **22** (that is, the driven gear **52** is not bound to the second winding bar **22**) and thus the second winding bar **22** does not rotate.

Thereafter, when the clutch protrusion **54** comes in contact with any of both end portions **53***a* and **53***b* of the clutch groove **53**, the second winding bar **22** is bound to the driven gear **52** and thus the second winding bar **22** and the driven gear **52** rotate in the same direction.

Accordingly, the first and second winding bars **21** and **22** can rotate together by the contact between the clutch groove **53** and the clutch protrusion **54** of the clutch unit **50**. Then, the first and second screens **31** and **32** go up or down together and are wound on the first and second winding bars **21** and **22** or unwound from the first and second winding bars **21** and **22**.

That is, since the first and second screens **31** and **32** are wound on or unwound from the first and second winding bars **21** and **22** at the same time, it is possible to very rapidly and simply perform the winding and unwinding operations of the screens **31** and **32**.

The entire operation of the invention will be described now.

First, when the front portion **28***a* of the driving string **28** in FIG. **4** is pulled down, the winding driver **24** and the first winding bar **21** rotate counterclockwise (in the direction of arrow C.C in FIG. **4**) and the driving gear **51** rotates along with the first winding bar **21** (in the direction of arrow C.C in FIG. **4**). When the rotating power of the driving gear **51** is transmitted to the driven gear **52** through the intermediate gear **55**, the driving gear **51** and the driven gear **52** rotate in the same direction (in the direction of arrow C.C in FIG. **4**). On the other hand, when the intermediate gear **55** is not disposed, the driven gear **52** rotates in the opposite direction of the driving gear **51**.

When the driven gear **52** rotates and the clutch protrusion **54** is being guided in the circumferential portion a of the clutch groove **53**, the driven gear **52** is not bound to the second winding bar **22** and thus the second winding bar **22** does not rotate. Accordingly, only the first screen **31** is unwound from the first winding bar **21** and moves down, whereby the transparent portions **33** and the opaque portions **35** of the first screen **31** can be matched with the transparent portions **33** and the opaque portions **35** of the second screen **32** as shown in FIG. **6**. That is, by moving up and down the first screen **31**

with only the driving of the first winding bar **21**, it is possible to perform the brightness adjusting function of the first and second screens **31** and **32**.

When the clutch protrusion **54** comes in contact with one end portion **53***b* of the clutch groove **53** with the rotation of the driven gear **52**, the second winding bar **22** to which the clutch protrusion **54** is fixed is bound to the driven gear **52** and rotates in the rotation direction of the driven gear **52**.

In this way, when the second winding bar **22** rotates along with the first winding bar **21**, the second screen **32** and the first screen **31** are individually unwound from the second winding bar **22** and the first winding bar **21**, respectively, and move down as shown in FIG. **5**.

Then, when the rear portion **28***b* of the driving string **28** in FIG. **4** is pulled down, the winding driver **24** and the first winding bar **21** rotate together clockwise (in the direction of arrow C in FIG. **4**) and the driving gear **51** rotates along with the first winding bar **21** (in the direction of arrow C in FIG. **4**). When the rotating power of the driving gear **51** is transmitted to the driven gear **52** through the intermediate gear **55**, the driving gear **51** and the driven gear **52** rotate in the same direction (in the direction of arrow C in FIG. **4**). On the other hand, when the intermediate gear **55** is not disposed, the driven gear **52** rotates in the opposite direction of the driving gear **51**.

When the driven gear **52** rotates and the clutch protrusion **54** is being guided in the circumferential portion a of the clutch groove **53**, the driven gear **52** is not bound to the second winding bar **22** (that is, the driven gear **52** is unbound from the second winding bar **22**) and thus the second winding bar **22** does not rotate. Accordingly, only the first screen **31** is wound on the first winding bar **21** and moves up, whereby the transparent portions **33** and the opaque portions **35** of the first screen **31** can be matched with the transparent portions **33** and the opaque portions **35** of the second screen **32** as shown in FIG. **6**. That is, by moving up and down the first screen **31** with only the driving of the first winding bar **21**, it is possible to perform the brightness adjusting function of the first and second screens **31** and **32**.

When the clutch protrusion **54** comes in contact with one end portion **53***a* of the clutch groove **53** with the rotation of the driven gear **52**, the second winding bar **22** to which the clutch protrusion **54** is fixed is bound to the driven gear **52** and rotates along with the driven gear **52** (in the direction of arrow C in FIG. **4**).

In this way, when the second winding bar **22** rotates along with the first winding bar **21**, the second screen **32** and the first screen **31** are individually wound on the second winding bar **22** and the first winding bar **21**, respectively, and move up as shown in FIG. **7**.

According to the above-mentioned configuration, since the first and second screens **31** and **32** are individually wound on or unwound from the first and second winding bars **21** and **22**, respectively, it is possible to rapidly and simply perform the winding and unwinding operations of the screens **31** and **32**.

In addition, according to the above-mentioned configuration, since a screen is divided into the first and second screens **31** and **32**, it is possible to precisely improve the straightness of the stripe lines of the transparent portions **33** and the opaque portions **35** of the screens **31** and **32**, thereby further improving the external appearance.

The invention claimed is:

1. A roll blind comprising:

a supporting frame disposable in a window frame and having a pair of end plates disposed at first and second ends of the supporting frame;

first and second winding bars rotatably disposed in the end plates of the supporting frame;

a winding driver rotationally driving one of the first and second winding bars;

first and second screens coupled to the first and second winding bars, respectively;

a weight bar to which the lower ends of the first and second screens are fixed; and

a clutch unit binding and unbinding the first and second winding bars with respect to each other,

wherein the clutch unit includes a driving gear fixedly coupled to the winding driver and a driven gear disposed to be bound to and unbound from the second winding bar,

wherein an intermediate gear is interposed between the driving gear and the driven gear, and

wherein the driven gear has an arc-like clutch groove formed in one surface thereof, the clutch groove has first and second end portions, the second winding bar has a clutch protrusion, the driven gear is selectively bound to or unbound from the second winding bar by guiding the clutch protrusion in the clutch groove and bringing the clutch protrusion into selective contact with the first and second end portions of the clutch groove, and wherein during rotation of said one of the first and second winding bars in opposite directions by the winding driver, the first and second winding bars are simultaneously rotated in a first direction when the clutch protrusion is in contact with the first end portion of the clutch groove and in an opposite direction when the clutch protrusion is in contact with the second end portion of the clutch groove.

2. The roll blind according to claim **1**, wherein the winding driver is disposed at one end of the first winding bar, the winding driver rotates along with the first winding bar, the winding driver includes a small-diameter portion and a large-diameter portion, the small-diameter portion is inserted and coupled to an inner circumference of the first winding bar, and a driving string is wound on an outer circumferential surface of the large-diameter portion.

3. The roll blind according to claim **1**, wherein the first and second screens each have alternating opaque and transparent portions extending parallel to the supporting frame, and the extent of vertical overlap between the opaque portions of second screen and the transparent portions of the first screen varies in relation to the position of the clutch protrusion in the clutch groove.

4. The roll blind according to claim **3**, wherein the opaque portions of the second screen fully overlap the transparent portions of the first screen when the clutch protrusion is in contact with one of the first and second end portions of the clutch groove, and the transparent portions of the second screen fully overlap the transparent portions of the first screen when the clutch protrusion is in contact with the other of the first and second end portions of the clutch groove.

5. The roll blind according to claim **1**, wherein a rotating member is disposed in an inner circumference of the second winding bar, the rotating member rotates along with the second winding bar, a fixed member is disposed inside the rotating member, and the fixed member rotatably supports the rotating member.

6. The roll blind according to claim **5**, wherein an elastic member providing elastic force in a circumferential direction to the rotating member is disposed between the rotating member and the fixed member.

7. The roll blind according to claim **6**, wherein the rotating member includes first and second rotating members, the second rotating member is inserted into the first rotating member,

and the elastic member includes a torsion portion wound on the outer circumferential surface of the fixed member and elastic legs disposed at both ends of the torsion portion and contactable with the second rotating member.

8. A roll blind comprising:

a pair of end plates;

first and second winding bars rotatably supported between the end plates in parallel relationship;

first and second screens coupled to the first and second winding bars for winding onto and unwinding from the first and second winding bars, respectively;

a winding driver for rotationally driving the first winding bar;

a clutch for coupling and decoupling the second winding bar with respect to the first winding bar, the clutch including a protrusion that commonly rotates with one of the first and second winding bars and is engageable with arcuately spaced apart first and second abutments that commonly rotate with the other one of the first and second winding bars; and

wherein during rotation of the first winding bar in opposite directions by the winding driver, the first and second winding bars are simultaneously rotated in a first direction when the protrusion is in contact with the first abutment and in an opposite direction when the clutch protrusion is in contact with the second abutment, and wherein the second winding bar is not rotated during movement of the protrusion between the first and second abutments.

9. The roll blind according to claim **8**, further comprising a weight bar to which the lower ends of the first and second screens are fixed.

10. The roll blind according to claim **8**, wherein the first and second screens each have alternating opaque and transparent portions extending parallel to the first and second winding bars, and the extent of vertical overlap between the opaque portions of second screen and the transparent portions of the first screen varies in relation to the position of the protrusion relative the first and second abutments.

11. The roll blind according to claim **10**, wherein the opaque portions of the second screen fully overlap the transparent portions of the first screen when the protrusion is in contact with one of the first and second abutments, and the transparent portions of the second screen fully overlap the transparent portions of the first screen when the protrusion is in contact with the other of the first and second abutments.

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